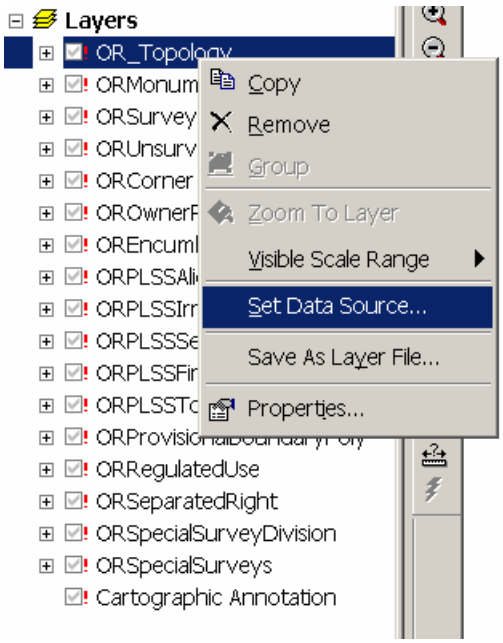
Managing ArcMap Layer Connection Properties

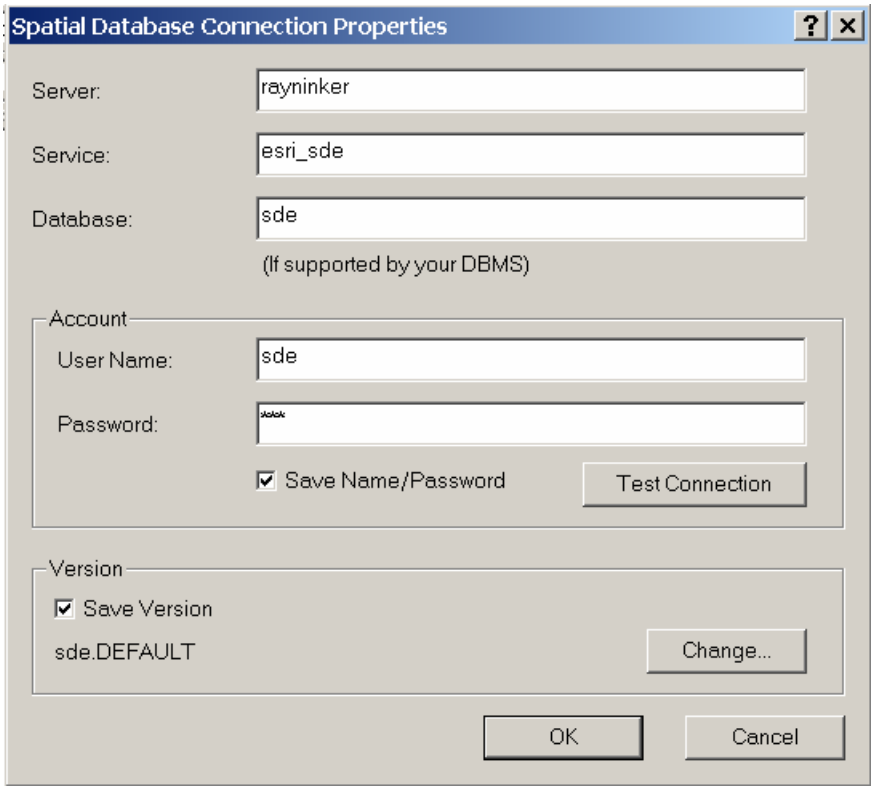
There are several options available to switch between different data sources in ArcMap. a number of options are available. This document describes the main techniques that can be used to manage connection information.

The red "!" exclamation mark appears when ArcMap cannot find the data source for map layers. The simplest approach is to right click one of the layers and select "Set Data Source…"



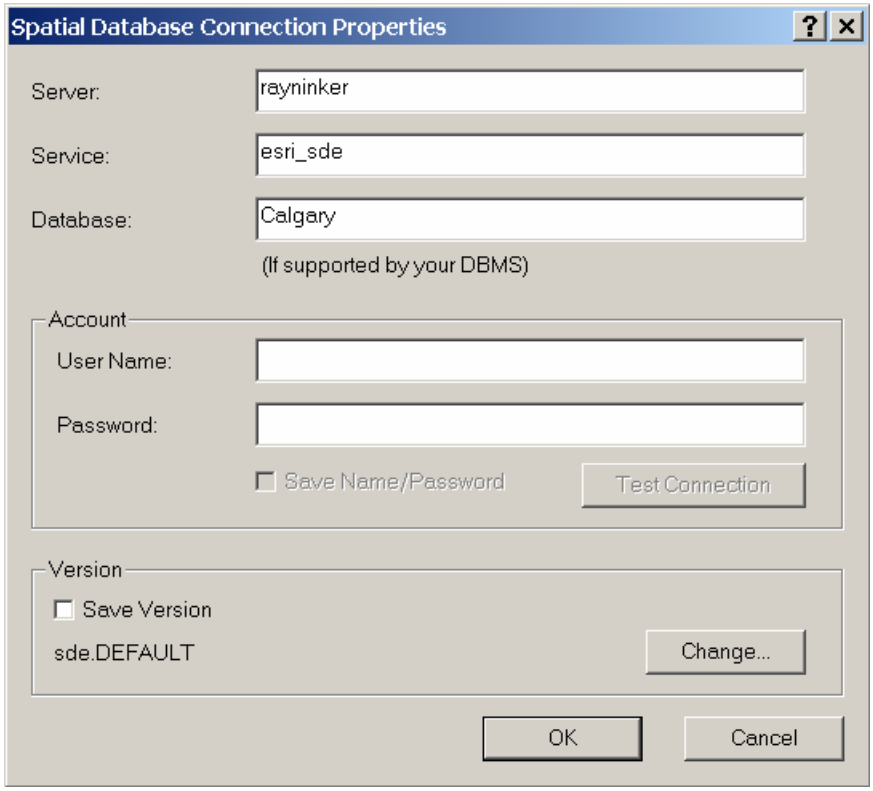
Once the appropriate connection parameters are set, ArcMap will attempt to apply this connection information to the other layers in the map document. If the layer names and feature class names line up then just setting the one data source should fix every layer for that data source.

With the versioned Geodatabase, a few more options are available. First, when adding data to a map, the properties for username, password and version in the connection are important. For instance, in ArcCatalog, if the Options for "Save Name/Password" and "Save Version" are checked as in the example below, the connection will automatically work with that connection information.

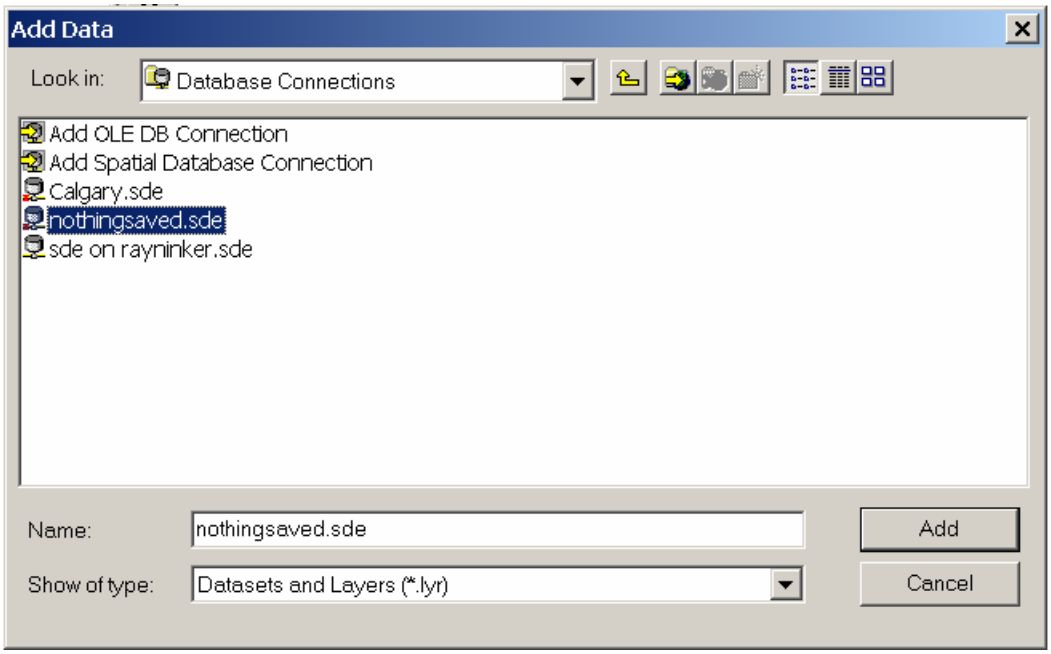


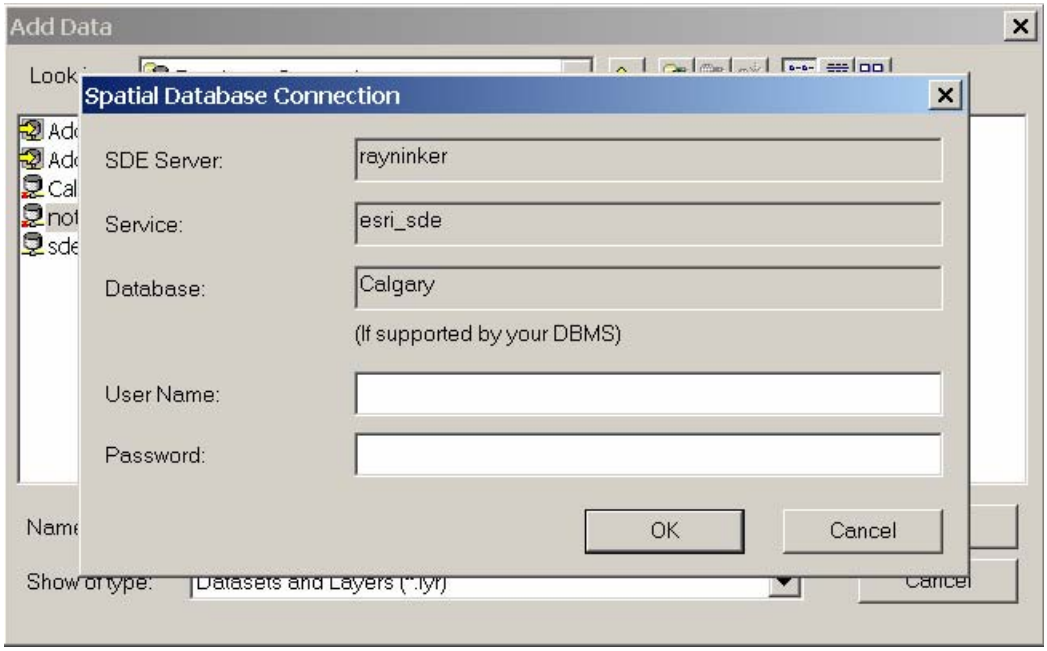
This works well for situations where the user/version are not changing frequently, or in saving the password in a layer created using the connection. The result is that every time a map document is opened with these saved parameters that the connection will just work.

In other cases we do not want to save this connection information because different users want to use the same map and have their own passwords, or they might want to choose which version to access as part of opening the map document. In the following example a connection is created without these parameters being saved, and when layers are added to ArcMap the user is prompted for the connection information.

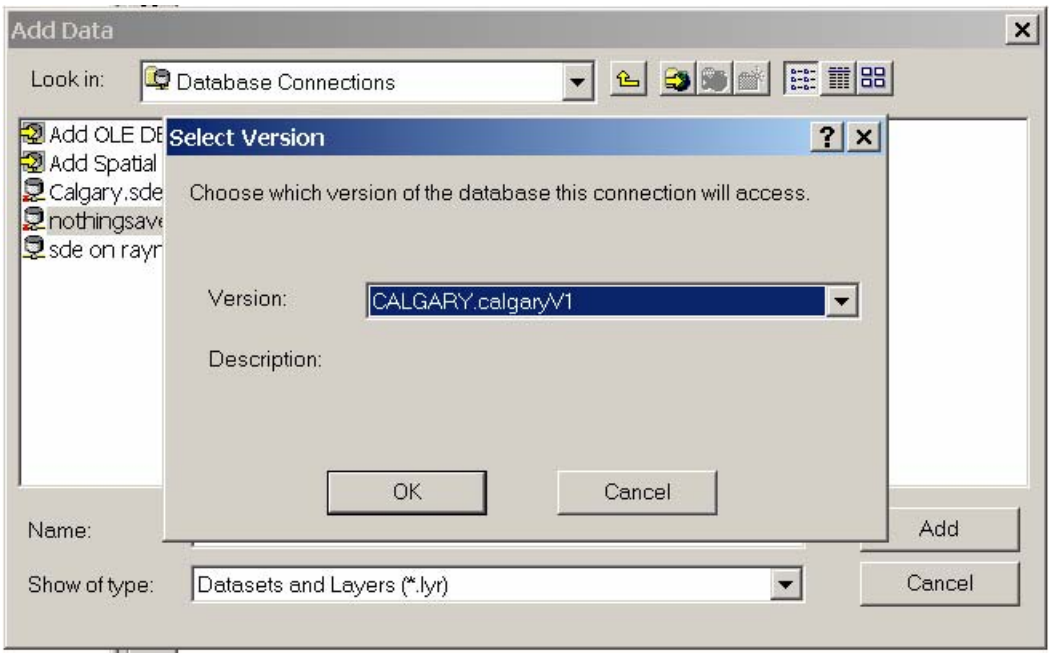


Once the connection is defined in ArcCatalog, a prompt to provide the additional connection information will appear, when adding data to ArcMap.

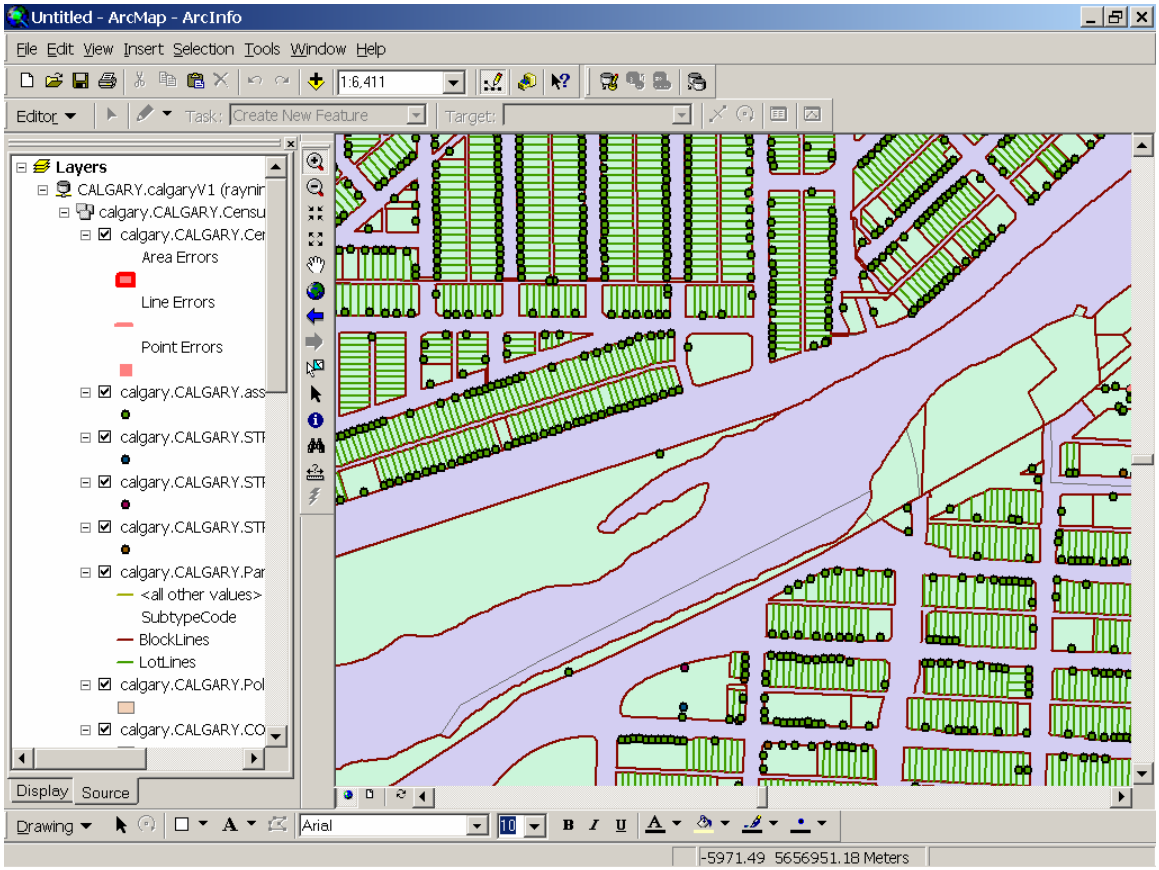




After the connection information is entered, select the version.



The resulting map document contains all the data layers selected.

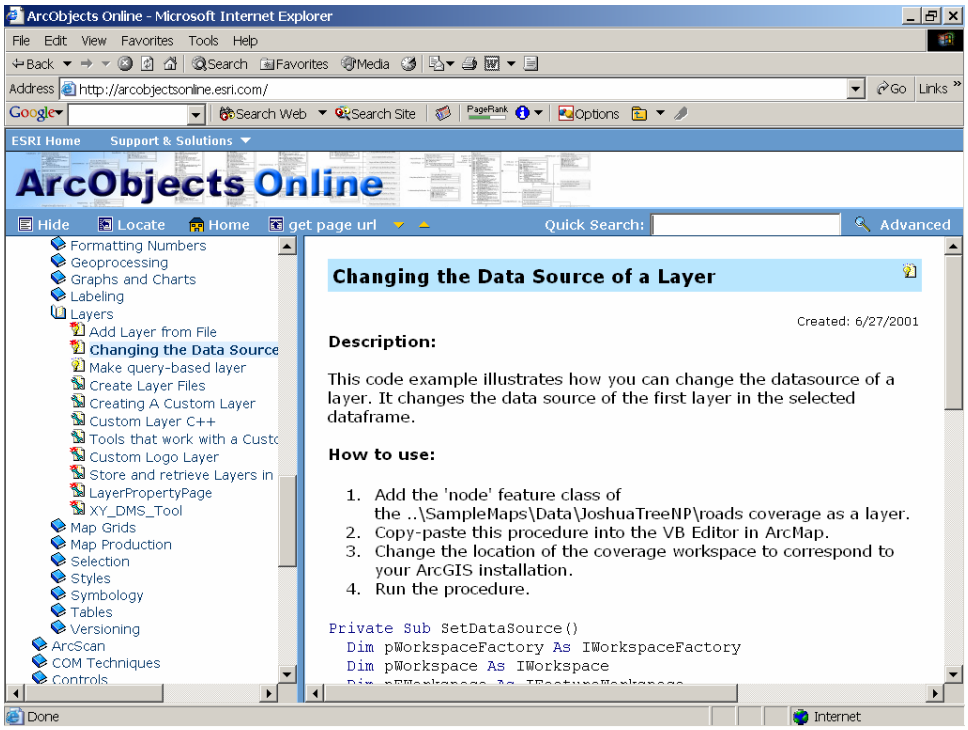


If we save and reopen this map document we will be prompted for the connection information every time. This solves many multiuser requirements, and works well in situations where we want to preserve the content of map documents and templates.

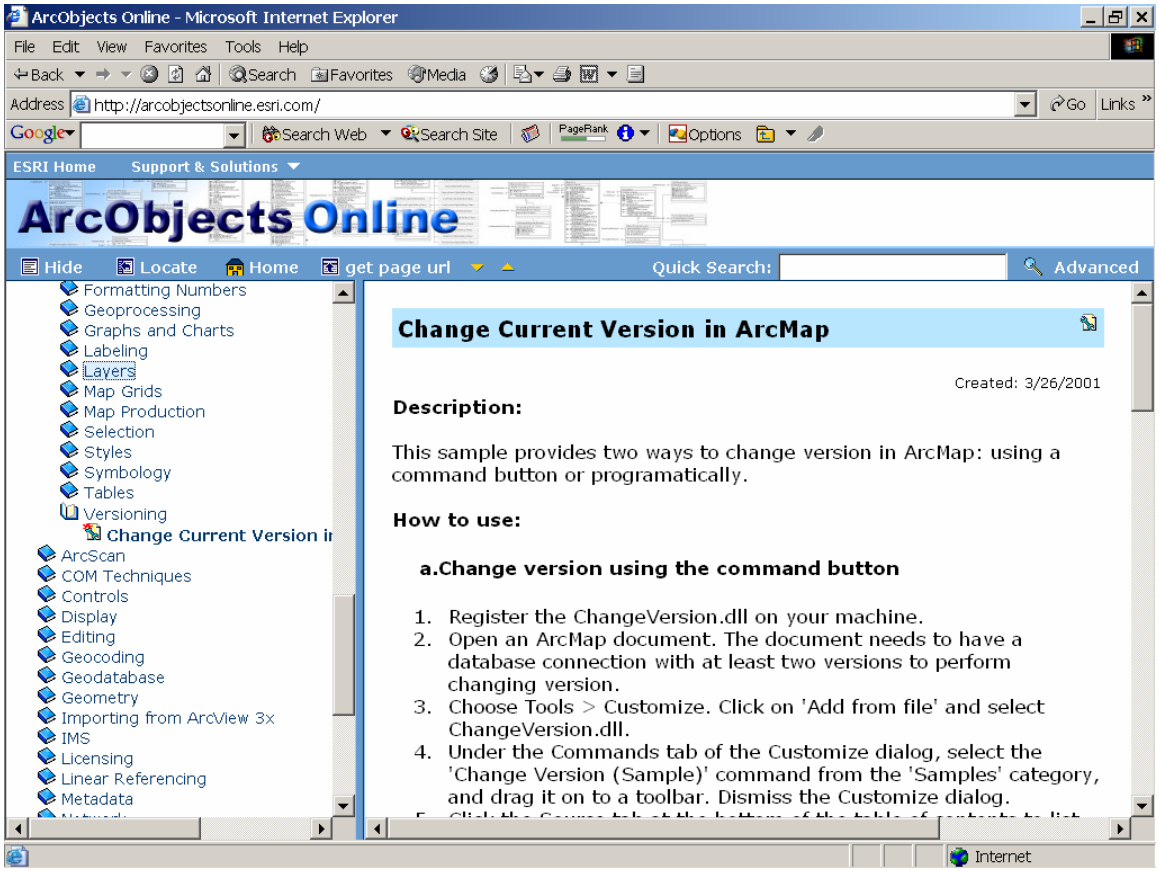
An additional challenge occurs when we want to change the other connection properties – the Server and Service connection properties. This happens when users want to switch between environments – like a test environment and a production environment. There are two approaches:

1) Programmatically change the connection properties.
2) Make changes to Windows Services and Hosts files

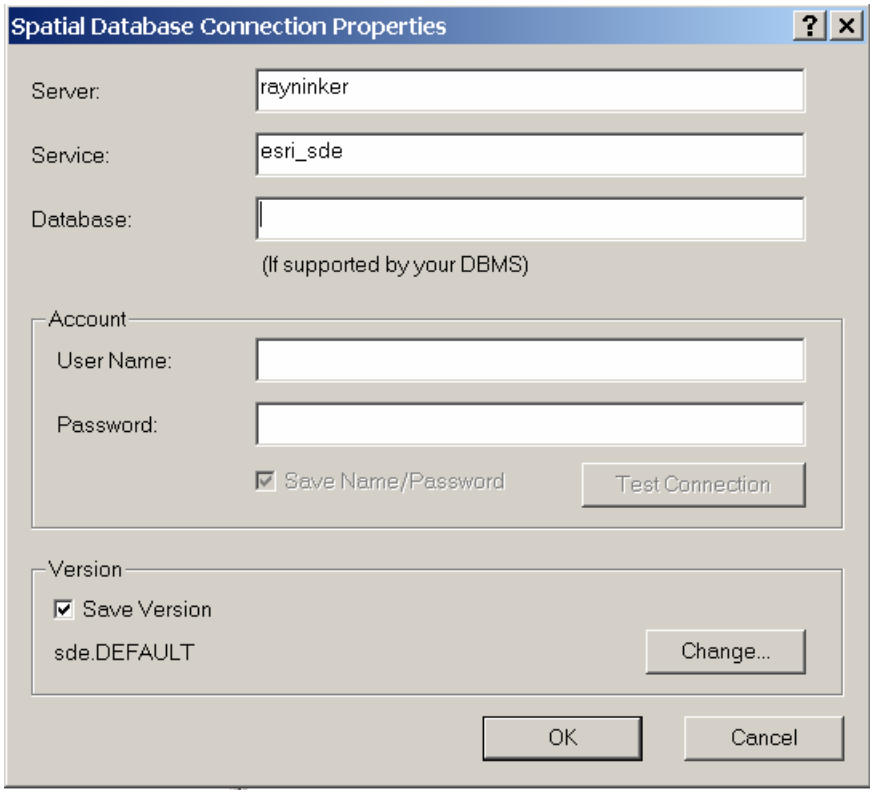
The first option involves programmatically setting the connection information for each of the layers in the map document. The following code example demonstrates this for single layer; the example can be found in ArcObjects Online.



Another developer sample changes the version programmatically for all layers. This example changes the version for all layers at once.



The second example involves changing Server and Service connection parameters at a system level. For instance we have the server “rayninker” and the service “esri_sde” defined in the connection below:



esri_sde is defined in the windows services file, on this computer: C:\WINNT\system32\drivers\etc\Services. In that file, there is an entry for:
esri_sde 5151/tcp #ArcSDE 8.3 for SQLServer
One approach is to change the SDE service to a different port number and that will change to the correct service without changing the map documents.

At the same time, we can also change an entry in the hosts file for server name and change the IP address. For example:
127.0.0.1 rayninker
To:
192.168.1.1 rayninker

Note: These changes have implications for all applications on the computer and should only be adjusted by users who are familiar with them.